

III. Remarks

A. Claims Amendments

Claim 23 has been amended to correct an obvious typographical error repeating the word “said.” Entry of the amendment as directed to a matter of form is requested.

New claims 30 and 31 have been added dependent on Claims 3 and 22. Support for these amendments can be found in, for example, FIG. 3, elements 130a, 130b and 130j. The recited feature helps to cushion the uncured or cured mat around vertical turns, so that it does not fall apart.

B. Rejection under 35 U.S.C. §103

1. Claims 1, 3-4, 7-8, 10-16 and 20-21

The Action rejects Claims 1, 3-4, 7-8, 10-16 and 20-21 as being obvious from U.S. Patent No. 3,231,985 to Smith, Jr. (“Smith”) in view of U.S. Patent No. 4,517,447 to Hicks. The Examiner concludes that Smith is considered to disclose each claimed feature except for “the claimed counter-rotation conveyor oven zones.” The Examiner then relies on Hicks for this feature, stating that it would have been obvious to combine the teachings of Smith and Hicks “for the purpose of allowing a zig-zag flow path of material to be treated.”

Independent Claim 1, is directed to an **insulation manufacturing system** having a curing oven for heating an uncured or partially cured insulation mat. The curing oven tower has a plurality of vertical oven zones and a conveyor system. The conveyor system has “**a plurality of pairs of counter-rotating conveyors**” (not “counter rotating conveyor oven zones” as stated by the Examiner) disposed to move the insulation mat through the vertical oven zones, where the insulation mat is disposed “**between said counter-rotating conveyors.**” An example of these pairs of counter-rotating conveyors with the insulation mat therebetween can be seen in exemplary conveyors 112 of FIG. 3 of the present application.

Smith describes a system for heating “**continuous sheet materials** such as paper or metal sheet or woven or non-woven fabrics” to evaporate volatile chemicals therefrom. (Col. 1, Lines 27-31). The system uses a system of rollers 254 (FIG. 14) for **pulling** the sheet material through the system and requires that the sheet material be **pre-threaded** through the apparatus over all rollers 254 (a-e), and out through the opening 257. (Column 10, Lines 41-44).

Initially, Applicants submit that sheet materials such as paper, metal and fabric are not uncured or partially cured insulation mats, which typically comprise thick layers (typically several inches thick) of deposited, layered fiberglass fibers and binder agent. The roller/pulley system of Smith simply cannot convey such insulation mats. The insulation mat would not have sufficient dexterity in its loose, layered fibrous form until cured (and maybe not even then) for pre-threading as required by the system of Smith or to be moved through the system by means of pulleys.

It is believed that the Examiner recognizes that Smith does not teach or suggest “cooperable pairs of counter-rotating conveyors” for moving an insulation mat and thus relies on Hicks for this feature. Applicants submit that Hicks also does not teach or suggest this feature.

Turning to Hicks, Hicks describes a system for conveying bread dough in hanging baskets. First, Applicants do not believe that one of ordinary skill would look to the baking arts for teachings regarding curing insulation mats. Second, FIG. 3 is a perspective view of the bread dough basket 36, which hangs from a conveyor 18 having parallel conveyor chains 18a, 18b with the basket 36 suspended at its sides from the chains. Assuming the Examiner means that chains 18a and 18b are a “pair of conveyors,” then they are clearly not a “**plurality of pairs** of counter-rotating conveyors” as claimed nor are they “counter-rotating,” as the chains 18a, 18b of Hicks must necessarily rotate in the same manner to convey the hanging basket 36.

Claim 1 also requires that each pair of conveyors counter-rotate such that the counter-rotation moves an insulation mat that is **disposed between the rotating conveyors**, i.e., a first conveyor from the pair engages a first surface of the mat and the second conveyor from the pair

engages a second surface of the mat to move the insulation mat. Like Smith, the conveyor system 18 of Hicks, which is configured to carry dough in hanging baskets, clearly is not (and cannot be) configured to move an uncured or partially cured insulation mat as there are no conveyors (counter-rotating or otherwise) capable of engaging an uncured or partially cured mat therebetween to convey the insulation mat as claimed. The combination of Smith and Hicks, therefore, does not teach each feature of Applicants' claimed invention.

Therefore, reconsideration and withdrawal of the rejection of Claim 1 and Claims 3 (which recites that the conveyors move the insulation mat both horizontally and vertically through the oven tower in a serpentine path), 4 (which recites that the path vertically overlaps itself, i.e., in the vertical plane) and 7 (discussed below), which depend from Claim 1, are respectfully requested.

Further, with respect to Claim 7, Applicants respectfully submit that the Examiner has not stated where or how either Smith or Hicks teaches or suggests "recirculating means for recirculating air from a region proximate to the top of said curing oven tower to a region proximate to a bottom of said curing oven tower." Therefore, it is respectfully submitted that the Action does not set forth a *prima facie* case of obviousness with respect to this claim.

Claim 8 is directed to a method of curing insulation comprising moving an uncured or partially cured insulation mat through a curing oven tower comprising a plurality of vertical oven zones. As argued above, neither reference (nor the combination thereof) teaches or suggests a method of curing insulation comprising an uncured or partially cured insulation mat.

Dependent Claim 13 is directed to a method where the mat is conveyed using a plurality of pairs of counter-rotating conveyors that cooperate to move the insulation mat through the oven tower. As argued above in connection with Claim 1, the combination of Smith and Hicks does not teach such a system or method.

Dependent Claim 14 is directed to a method including the step of recirculating air from a region proximate to the top of said curing oven tower to a region proximate to a bottom of said curing oven tower. As with Claim 7, Applicants respectfully submit that the Examiner has not stated how or where the combination of references teaches such a recirculation feature or step. Therefore, it is respectfully submitted that the Action does not set forth a *prima facie* case of obviousness with respect to this claim.

Dependent Claim 15 recites that the insulation mat comprises glass fibers. Applicants submit that the Examiner has not stated where or how either Smith or Hicks teaches this feature. Therefore, it is respectfully submitted that the Action does not set forth a *prima facie* case of obviousness with respect to this claim.

Per the foregoing, it is respectfully submitted that the combination of Smith and Hicks does not teach the method of independent Claim 8 or Claims 10-15, which depend from Claim 8. Reconsideration and withdrawal of the rejection of these claims are respectfully requested.

Independent Claim 16 is also directed to an insulation manufacturing system that including a conveyor system comprising cooperable pairs of counter-rotating conveyors. The conveyors are arranged to move the uncured or partially cured insulation mat both vertically and horizontally through the curing oven tower in a serpentine path. As argued above in connection with Claim 1, neither the conveyor system of Smith or Hicks individually nor in combination provides a conveyor system that can convey an uncured or partially cured insulation mat, let alone convey such a mat both vertically and horizontally through a curing oven tower in a serpentine path.

Like Claim 7 discussed above, Claim 20 recites that the system further comprises recirculating means. Applicants submit that the Examiner has not stated where or how either Smith or Hicks teaches this feature. Therefore, it is respectfully submitted that the Action does not set forth a *prima facie* case of obviousness with respect to this claim.

For at least these reasons, it is respectfully submitted that Claim 16 and Claims 20-21, which depend from Claim 16, are allowable over the cited references. Reconsideration and withdrawal of the rejection of these claims are respectfully requested.

2. Claims 22-29

The Action rejects Claims 22-29 as being obvious from US. Patent No. 3,144,376 to Plumberg et al. (Plumberg) in view of U.S. Patent No. 3,060,589 to Wallin. In the rejection, the Examiner concedes that Plumberg does not teach moving an uncured or partially cured insulation mat through a curing oven tower in a serpentine path. The Examiner then concludes that it would have been obvious to modify Plumberg with the serpentine path of Wallin so that the treatment size could be minimized and "so that the flow velocity of the medium through the material is sufficient to overcome the inner frictional resistance of the material and make it possible for the material to move only by the action of the treating medium through the passageways . . . to form a coherent body or layer."

It is again respectfully submitted that there is no reasonable expectation of success in such a combination.

Plumberg et al. discloses a conventional insulation mat manufacturing system, such as Applicants described in the "Background of the Invention" section of the present application. The system includes a purely horizontal curing oven 23 shown in FIG. 1.

Wallin, on the other hand, provides a system for drying **granulate loose materials**. The system moves the granulates in a generally zigzag direction, but relies on gravity and blown air to move the granulates material. These granulates are not formed into coherent mats by the heating process that can be handled by the insulation installers and as such can be moved through the Wallin system merely by means of gravity/blowing medium. Such a system, however, could not move uncured or partially cured mats. For example, the drag on the bottom of static wall 9 and turbulence from the blowers would prevent the formation of a coherent, cured insulation mat, which is the ultimate goal of Applicants' invention and in direct contrast to Wallin's goals

of drying loose granulate particles (which presumably should remain in granulate form after heating).

Therefore, Applicants submit that it is important that they claim a method of curing an insulation mat and the corresponding step of moving the insulation mat in the recited manner. Insulation mats are not loose granulates and form a fibrous web before curing. This web takes on an increasingly more robust form as it moves through the curing process. A gravity based/blown conveying method as described in Wallin may be appropriate for moving loose granulates that are being dried and not cured into a final coherent structure for handling. However, such a system would simply not work for curing an insulation mat. Wallin, therefore, would not teach one of ordinary skill how to modify a conventional system such as disclosed in Plumberg to move an uncured or partially cured **insulation mat** both horizontally and vertically in a serpentine path through a curing oven tower. Simply, there is no reasonable expectation that the combination of the two systems would achieve Applicants' claimed method.

Therefore, it is submitted that Claim 22 is not obvious from and is allowable over the cited references. Claims 23-29 depend from Claim 22 and, it is submitted, are also allowable.

Claims 23-25 recite that the conveying step utilizes various cooperable conveyor configurations discussed above capable of moving the insulation mat both vertically and horizontally through the curing oven tower. Plumberg teaches no cooperable conveyors capable of vertical movement of an insulation mat, and Wallin teaches no cooperable conveyors at all. For at least these additional reasons, it is respectfully submitted that Claims 23-25 are independently allowable over the cited combination of references.

Dependent Claim 27 recites a recirculating step. Applicants respectfully note that the Examiner has not identified where or how the cited references teach this recited step. Therefore, it is respectfully submitted that the Action does not set forth a *prima facie* case of obviousness with respect to this claim. Reconsideration and withdrawal of the rejection of this claim is respectfully requested.

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Claims 23-29 depend from Claim 22 and, it is submitted, are also allowable.
Reconsideration and withdrawal of this rejection are respectfully requested.

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IV. Conclusion


In view of the foregoing remarks and amendments, Applicant(s) submit that this application is in condition for allowance at an early date, which action is earnestly solicited.

The Commissioner for Patents is hereby authorized to charge any additional fees or credit any excess payment that may be associated with this communication to deposit account **04-1679**.

Respectfully submitted,

Dated: _____

9/1/05



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